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An Exploratory Investigation of the Relationship between the Kahn Test of Symbol Arrangement and the Edwards Personal Preference Schedule

Alice Watkins Rose

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AN EXPLORATORY INVESTIGATION OF THE RELATIONSHIP BETWEEN THE KAHN TEST OF SYMBOL ARRANGEMENT AND THE EDWARDS PERSONAL PREFERENCE SCHEDULE

A THESIS

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INTRODUCTION

The Kahn Test of Symbol Arrangement (KTSA) appears to be the only testing instrument based on the assumptions that symbols can be used to assess not only intellectual functioning in the form of abstracting ability, but also personality functioning and psychopathology (L'Abate and Craddick, 1965). The symbols used on the KTSA were originally chosen by Kahn so as to have universal meaning (Kahn, 1951), and current research shows the KTSA to be promising as a testing instrument which can be easily modified for different cultures (Nakanishi, 1969; Theiner and Giffen, 1964).

Validation research has centered on determining the KTSA's power as a diagnostic instrument (Plummer, 1970; L'Abate and Gale, 1969; Kipper, 1967; Shearn and Warren, 1967; Hedlund and Mills, 1964a; Hill, Latham and Theiner, 1963; L'Abate, Friedman, Volger and Chused, 1963; L'Abate, Boeling, Hutton and Mathews, 1962) and on determining interscorer reliability (Abidin, 1970; Clack, Guerin and Latham, 1966; Craddick and Stern, 1965; Craddick, 1964; Hedlund and Mills, 1964b). On the whole, the KTSA seems to be valid for diagnosing psychosis, and brain damage. It may even prove to be sensitive to determining the physiological location of brain damage (Plummer, 1970). It is weakest in diagnosing depressives (Kahn, Hill and Latham, 1962), and character disorders and neurosis (L'Abate and Craddick, 1965), however Kahn (1958) has done some interesting research on this diagnostic category. Research on interscorer reliability has been conflicting, however if care is taken in following the scoring

system, scores will be acceptably reliable.

In their critical review of 1965, L'Abate and Craddick mention the need for more validation studies of the KTSA. They suggest that the semantic differential be used to rate the symbols (which has since been done by Silvers and Wirls, 1970) and that other tests be used factor analytically with the KTSA to establish concurrent validation. There have been few correlational studies. The KTSA Number Element (NE), which can be considered an over-all measure of abstracting ability, has been found to have little relationship to WAIS IQ's (Mann, 1969b; Craddick and Stern, 1963) or college grade-point averages (Ballo, 1972). The KTSA and the WAIS have been used together to assess a wide range of personality functioning (Kriegman and Kriegman, 1965).

L'Abate (1967) mentions briefly a factor analysis of the KTSA and the MMPI, although this was not the major focus of his study. Of the three factors worthy of interpretation, the second had positive loadings from KTSA-E scores and MMPI-K scores with a negative loading contributed by KTSA-D scores. Apparently E scores seem to be tapping a component of defensiveness, which also embraces few symbolizations scored at a concrete or D level. A third factor suggested that KTSA-C scores bear an as yet unexplained relation with MMPI-F and K scores.

Aftanas and Royce (1969) factor analysed the KTSA with several tests of brain damage; however, since scoring categories are not specifically analysed this study will not be discussed here. Factor analysis has been used most with the Group KTSA developed by Craddick and Kelly (Kelly, 1969). A preliminary factor analysis showed the scoring categories have a high degree of specificity of

variance, with the exception of Z and D scores (Kelly, 1971). In a multiple correlational analysis using the nine scoring categories from the symbolizing section of the Group KTSA as predictors, Kelly (1972) found that these measures are not good multiple predictors of variables from the MMPI, CPI, 16 PF and EPPS. Kelly suggests that results from the Group KTSA may not apply to the individual KTSA. Three factor analytic studies are in progress comparing the individual KTSA with the CPI (Cooke, 1972), the MMPI (Levine, 1972) and the 16 PF (Soper, 1972). The present study will investigate the relationship between the KTSA and the Edward's Personal Preference Schedule (EPPS) (Edwards, 1959).

The EPPS is a forced-choice paper and pencil test developed by Edwards to assess fifteen personality variables derived from Murray's (1938) manifest needs. Edwards used the forced-choice method to control for faking by pairing items which have been judged as equal in social desirability. This method has been criticized as being costly in terms of validity (Levonian, Comrey, Levy and Procter, 1959) and it has apparently failed in its purpose of making the EPPS unfakable (Orpen, 1971; Dicken, 1959; Borislow, 1958).

The EPPS has been used extensively in assessing the need structure of different populations, both normal (Fletcher, 1971; George, 1971; Ozenhosky, 1970; Reiter, 1970; Williams, Hoepner, Moody and Ogilvie, 1970; Bailey and Claus, 1969; Izard, 1960) and abnormal (Wilson and Greene, 1971; Watson, Pasewark and Fitzgerald, 1970; Pasewark, Davis and Fitzgerald, 1968; Fitzgerald, Pasewark and Tanner, 1967; Norwicki, 1967; Kissinger, 1966; Bernberg, 1960; Newman and Wischner, 1960). Concurrent validation studies, using

correlational and factor analytic techniques, are numerous (Burton, 1971; Coates and Alluisi, 1971; Digiuseppe, 1971; Stein, 1968; Caputo, Plapp, Hanf and Anzel, 1965; Zuckerman, Levitt and Lubin, 1961; Hartley and Allen, 1962; Levonian, Comrey, Levy and Procter, 1959; Dunnette, Kirchner and DiGidio, 1958; Allen, 1957; Merrill and Heathers, 1956) and vary in support. Several studies using behavioral criteria tend to support construct validity of the EPPS (Grosz and Wagoner, 1971; Zuckerman and Grosz, 1958; Bernardin and Jessor, 1957).

The test is of particular interest in this study because of the need, as L'Abate and Craddick (1965) suggest, to investigate the KTSA's potential to distinguish among levels of normality. The EPPS is one of the few tests based on the assumption that normality is heterogeneous, at least where needs are concerned. The tests differ in two primary ways: 1) the KTSA is administered individually, allowing for direct observation of behavior, while the EPPS is a paper and pencil test, and 2) the KTSA allows for both forced and free choices while the EPPS offers forced choices only. A thorough description of the administration and scoring of the KTSA is available in the manual (Kahn, Hill and Latham, 1962) and a photograph of the materials is available in Ruch (1967).

The variables chosen from the KTSA for the factor analysis are the total number of A,B,C,D,E,F,X,Y, and Z responses, the NE, the number of letters in the score pattern, the first estimate (Arrangement III) and the number of hearts symbolized as "love" on symbolization. Counted from the sort section were the number of objects is a) DEAD, b) SMALL and LARGE, c) BAD and GOOD, d) LIVING and DEAD; the number of stars in SMALL; the number of hearts in

LOVE; and the sum of the number of objects in the negative sorting categories HATE, BAD and DEAD, substracted from the sum of the number of objects in the positive sorting categories LOVE, GOOD and LIVING and a constant, 15, was added. The Liking-Disliking section (Arrangement IV) of the KTSA was scored for letter scores which were given weights according to the manual (Kahn, Hill and Latham, 1962). The sum of the weighted scores for Disliking was subtracted from the sum of the weighted scores for Liking and a constant of 24 was added. The number of clear objects occurring together on all arrangements was scored by assigning a score of 2 for any two occurring together, 4 for any three occurring together, and 8 for all four clear objects occurring in juxtaposition.

The EPPS was scored for Achievement (ach), Deference (def), Order (ord), Exhibition (exh), Autonomy (aut), Affiliation (aff), Intraception (int), Succorance (suc), Dominance (dom), Abasement (aba), Nurturance (nur), Change (chg), Endurance (end), Heterosexuality (het) and Aggression (agg). Consistency was not scored.

Study II: Extreme KTSA Scorers

High and low scorers on the KTSA variables used in the factor analysis were compared as to how they scored on the EPPS to further clarify the factor analysis. Letter scores above and below the KTSA norms have certain personality characteristics associated with them (see Kahn, Hill and Latham, 1962). Because most scores on the KTSA are interpreted in conjunction with other scores and occur in dynamic interrelation, no hypotheses were generated; instead it was decided to take an exploratory approach.

The sexes were analyzed separately. L'Abate and Craddick

(1965) report that the KTSA was developed using 453 males and only 47 females. There have been few studies concerning sex differences. Only one directly addresses itself to examining sex differences in an adult population (Theiner, 1965). Kelly (1970) discusses sex differences in standardizing the Group KTSA, and Silvers and Wirls (1970) report few differences in a pre-adolescent population. L'Abate et al (1962) report that the KTSA is useful for distinguishing organic from schizorphenic males, but this is not so for females.

Differences between the sexes were not analyzed statistically in the present study. Rather females and males were analyzed as two separate groups to see how responses to the KTSA may differ as a function of sex.

It is interesting to note that when Theiner (1965) finds college females produce more Z scores than males, with college males producing more Y and X scores than females, he interprets this finding as indicating the male is "more apt to temper his conceptualizations with the demands of reality" (p. 288) than are females. On the other hand, when Kelly (1970) finds that college males have more A and Z responses than college females, he interprets these data to mean that males are "more imaginative, abstract and (only) possibly bizarre" (p. 50) than females. Both interpretations appear plausible. Theiner (1965) also found that college females have more B responses than college males, which he interprets to mean that females tend to use more blocking and denial defense mechanisms than males.

Study III: KTSA Sort

The third and last study concerns the relationships between the KTSA sorting section and the EPPS. After all arrangements have

been completed on the KTSA the client is asked to sort the objects into eight categories: LOVE, HATE, BAD, GOOD, LIVING, DEAD, SMALL and LARGE. There is a second sort which is optional: MOTHER-WOMAN-GIRL, FATHER-MAN-BOY, FAILURE-SADNESS, SUCCESS-HOPE, SECURITY-COMFORT-PEACE, MURDER-KILL, ESCAPE-RUN AWAY, SEX.

Research on the Sort has been conflicting. Mann (1969a) reports male drug addicts place more objects in HATE, BAD and DEAD than are found in normal profiles. He interprets this to indicate that the sort is tapping the aggressiveness of the addicts. Yet in another article (Mann, 1969b) he reports that although addicts express hostility verbally during testing, they place only a minimum number of objects in MURDER-KILL and many objects in SECURITY-COMFORT-PEACE. They tended to not use the SUCCESS-HOPE category where, he writes, "active striving and motivation is required" (p. 65). He interprets these findings support the hypothesis that addicts have passive-dependent tendencies.

Craddick and Levy (1968) report that aggressive prison inmates, as defined by their crimes, are no different than non-aggressive inmates in using the negative Sort. They had hypothesized aggressive inmates would use the HATE, BAD and DEAD over the LOVE, GOOD and LIVING Sorts.

In a study designed to test the fakability of the KTSA Craddick (1967) reports that subjects simulating psychosis place more objects in HATE, BAD and DEAD and less in LOVE, GOOD and LIVING than when they take the KTSA under non-simulation conditions. The group which was "psychotic" first and then "themselves" second, placed fewer objects in HATE as normals than did a group reversed in

test-taking order. This group also placed more objects in LARGE and SMALL as normals than did those being "themselves" first and "psychotic" second. The LARGE - SMALL Sort is considered either emotionally neutral or related to expansiveness - constriction. Craddick concludes that the KTSA Sort is easily fakable.

There appears to be a "social desirability" factor in the Sort sections. Perhaps Mann's (1969b) addicts felt free to express themselves on the Sort category which had either neutral or positive social sanction. Hypotheses about the negative Sorts may be risky, and the Sort in general may be easily faked due to the social desirability factor, but his data actually give support to the validity of the Sort if viewed in the following manner. Addicts are literally taking drugs which kill pain (in this case psychical rather than physical pain); their major concern in life has become obtaining these comforting pain killers; therefore it is logical that much of life is centered around obtaining comfort, peace and security. The distinction between the passive-dependent hypothesis and this one is that this hypothesis may help to explain why the "addict personality" is so difficult to distinguish from the normal personality. Normal people encounter pain, and in our culture which follows the medical model, pain relief is a culturally accepted phenomena.

The following hypotheses were generated from the KTSA manual (Kahn, Hill and Latham, 1962, p. 86) and all discussion is derived therefrom. The hypotheses are tentative for several reasons: a) conflicting research on the Sort, b) the fact that the Sort can be faked, and c) the fact that Kahn, Hill and Latham are careful to state that the meanings given to atypical sorting are only "possible

implications".

1. Ss having more than 3 objects in LOVE will score higher on suc and def and lower on agg and aut than Ss having 3 objects in LOVE.
2. Ss having fewer than 3 objects in LOVE will score lower on nur, het and aff than Ss having 3 objects in LOVE.
3. Ss placing no hearts in LOVE will score lower on aff and nur and higher on aut than Ss placing 3 hearts in LOVE.
4. Ss placing more than 1 object in HATE will score higher on agg and aut than Ss placing 1 or no objects in HATE.
5. Ss having more than 1 object in BAD will score higher on agg, and aba than Ss having 1 or no objects in BAD.
6. Ss having more than 3 objects in GOOD will score higher on def, ord and end and agg than Ss having 2 or 3 objects in GOOD.
7. Ss having fewer than 2 objects in GOOD will score lower on aff, suc and nur and higher on aut and agg than Ss having 2 or 3 objects in GOOD.
8. Ss having fewer than 3 objects in LIVING will have higher scores on aba and lower scores on aff than Ss having 3 or 4 objects in LIVING.
9. Ss having more than 1 object in DEAD will score higher in aba than Ss having 1 or no objects in DEAD.
10. Ss having more than 2 objects in SMALL will score higher on aba and agg than Ss having 2 objects in SMALL.
11. Ss having fewer than 2 objects in SMALL will score higher on ach and aut than Ss having 2 objects in SMALL.

12. Ss having 1-3 stars in SMALL will score lower on ach than Ss having no stars in SMALL.

13. Ss having more than 2 objects in LARGE will score higher on ach and exh than Ss having 2 objects in LARGE.

14. Ss having fewer than 2 objects in LARGE will score higher on aut and agg and lower on def than Ss having 2 objects in LARGE.

Because of the lack of data on sex differences for the KTSA it was decided to keep the analyses separate for the sexes. No differential hypotheses were made.

METHOD

Subjects were taken from elementary psychology courses at Georgia State University. There were 104 females ranging from 17 to 43 years and 65 males ranging from 16 to 28 years. The mean age for both sexes was 20.1 years. The EPPS was given in groups and the KTSA was given individually. Inter-scorer reliability was assessed by selection of 200 specific scoring instances from the KTSA and comparisons were made between scoring by the author and a psychologist in private practice who has had several years of experience with this test. Agreement exceeded 90 per cent.

RESULTS AND DISCUSSION

Study I: Factor Analysis

Single variable scores were intercorrelated and the resulting 39 x 39 matrix was factor analyzed. 22 factors were found to account for 85.7% of the variance. These factors were rotated to an orthogonal solution using a varimax IBM program. It again must be stressed that the present factor analysis is highly exploratory and, in many respects, hypothesis-generating in nature. A large number of factors was extracted not because it was believed that each would be reliable, valid and definitive in nature, but rather because of the context of investigatory intent in which the present study resides.

In Table 1 are presented rotated factor loadings for the 22 factors extracted. The cumulative per cents of the variance accounted for by each successive factor are listed in Table 2.

Factor A: Pleasant Social Interaction

Need for interaction with others (aff .82) (perhaps even a fear of being alone), need to help others (nur .70) and get help from them (suc .24), and involvement with the tender emotions (number of hearts in LOVE .26) is contrasted to the rejection of being independent from others (aut -.47) and of either competing with (ach -.36) or leading others (dom -.29). Particularly of interest here is the rejection of all EPPS variables which may include self assertion in the form of arguing (agg -.59 and aut -.47). This factor is named "Pleasant Social Interaction" because of the configuration of high loadings on aff (.82), nur (.70), agg (-.59) and aut (-.47). The overall flavor of this factor is one of nurturant social interaction, void of self assertive or angry interchanges.

Table 1: Factor Loadings

Variables	Varimax Factors																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
Age													.94									
Sex		-.21				-.25		.30	.30		.20			.62								
ach	-.36	.25								-.32				.38					.35	.25		-.28
def		.28				-.30					.42				-.21		-.42			-.23		
ord																	-.90					
exh																		.88				
aut	-.47							-.30		.33	-.27			.20			.43					
aff	.82																					
int														-.83								
suc	.24							.21											-.81			
dom	-.29								.70				-.21									
aba									-.82				-.22									
nur	.70																	-.25	-.25			
chg								-.90														
end		.32															-.33	-.23	.58	-.22		
het		-.90																				
agg	-.59							.27	.30			-.28					.20		-.27			
A																						-.93
B			.30							.73					-.27	.22						
C			.41	.25						-.29		-.51								.36		.28
D			.30									.86										
E					.80										.21							
F					.81																.22	
X			.23								-.84											
Y						.22													-.86			
Z			-.85																.27			
NE			-.91																-.22			
Hearts in LOVE	.26			.50	.21			.25		.36					.21						-.33	
Number of Letters in Score Pattern			.37		.54					.21		.22										-.35
DEAD				-.51		-.72																
SMALL and LARGE				-.24		.34	-.74								-.20							
First Estimate															.89							
Liking-Disliking																.93						
Clear Objects					.20																.84	
Stars in SMALL		.21					-.76											.27				
BAD and GOOD						.40	.74															
LIVING and DEAD						-.89																
Hearts as "Love"			-.20	.25			.20	-.21	-.28			-.20					.21			.39	-.25	.25
Positive-Negative Sort				.87																		

Table 2. Cumulative Per Cent of Variance Accounted for by Each Successive Factor.

Factor	Per Cent of Variance
A	11
B	08
C	06
D	06
E	06
F	05
G	05
H	04
I	03
J	04
K	03
L	03
M	03
N	02
O	03
P	02
Q	02
R	02
S	03
T	01
U	02
V	02

Factor B

This factor is defined primarily by het (-.90), an EPPS variable which seems to vary in meaning across research. On the one hand high het scores are associated with psychiatric disorders (Norwicki, 1967) and, on the other hand they are associated with healthy sexual identification (Wilson and Greene, 1971). Het may simply imply a person is dating at the time he is tested. Those who are "not dating" may be simply more interested in working (end .32, ach .25). In this context the positive loadings from def (.28) and stars in Small (21) do not fit the explanation. These loadings, however, are quite small. Stars in SMALL is considered an indication of lowered aspirations (Kahn, Hill and Latham, 1962), yet this variable loads positively with ach. Again, it should be kept in mind that we are dealing with an extremely small per cent of the variance on these variables, which are themselves probably multi-dimentional.

Factor C

This factor may be an artifact of the weighting of scores to derive the NE (-.91). Z(-.85), weighted the highest, is a major contributor to the NE, while B (.30), C (.41), D (.30) and X (.23) do not contribute as much. Judging from the low loading from the number of letters in the score pattern (.37) and all the loadings mentioned above, there is a tendency in this sample for people having Z responses to make more Z responses than other responses. This, again, accounts for the high NE while accounting for the relatively restricted range of scores in the score pattern (.37). However, this latter loading is small.

Factor D

This factor is defined primarily in terms of an emphasis on positive sorting categories (LOVE, GOOD and LIVING) over negative sorts (HATE, BAD and DEAD) (.87). There is some relationship, though not substantial, between a positive emotionality sorting emphasis and tendencies to earn high C scores (.25) and to symbolize hearts as "love" (.25). The other loadings on this factor are manifestations of artifacts as a consequence of how the sort is done (number of hearts in LOVE .50, number of objects in DEAD -.51, and number of objects in SMALL and LARGE -.24).

Factor E: Emotionality

The high loadings on E (.80) and F (.81) coupled with the moderate positive loading on the number of letters in the score pattern (.54) suggests that this factor has a flavor of lack of emotional constriction. The low positive loadings on the number of hearts in LOVE (.21) is taken to mean that the tender emotions are available (Kahn, Hill and Latham, 1962). Placing clear objects together may signify anxiety (Kahn, Hill and Latham, 1962). On the whole this factor seems to be an emotionality factor. This finding is consistent with the empirical fact that hysterics, who typically earn more F scores, are likely to have many letters in the symbol pattern (Kahn, Hill and Latham, 1962).

Factor F

Factor F is an artifact of the way the KTSA Sort is done. Placing objects in one sort area makes it impossible to place them in others (number of objects in: SMALL and LARGE .34, BAD and GOOD .40, LIVING and DEAD -.89, DEAD -.72). However, of interest is the

high negative loading on number of objects in DEAD (-.72) and the low negative loading on def (-30), which suggests a lack of intropunitiveness. This supports Kahn's, Hill's and Latham's (1962) view of the DEAD Sort and Hartley's and Allen's (1962) suggestion that def may be associated with masochism.

Factor G

This factor represents an artifact of the mechanics of the sorting task (number of objects in: SMALL and LARGE -.74, BAD and GOOD .74; and number of stars in SMALL -.76).

Factor H: Ambivalent Dependency

Factor H suggests hostile or ambivalent dependency. Independence is avoided (aut -.30) and others are needed for supports (suc .21), while at the same time anger and criticism against others in present (agg .27). Ambivalence about relationships is most apparent in the heart symbols on the KTSA. To fail to symbolize hearts as "love" signifies maternal rejection and rigidity in interpersonal relationships (Kahn, Hill and Latham, 1962). While failing to symbolize hearts as "love" verbally (-.21), hearts are placed non-verbally in the sorting category LOVE (.25). This combination may indicate a non-verbalized need for love that must be guessed by others who must "see through" the hostile exterior. The major determinate of this factor is an avoidance or fear of change (chg -.90). Such rigidity is congruent with the other interpretations for this factor. It must be kept in mind that the foregoing statements are purely speculative in nature due to the low loadings discussed above and the unusual configuration of the heart symbols.

Factor I

This factor indicates that the need to be a leader (dom .70) and to assert oneself (agg .30) is opposite to the need to subordinate oneself to others (aba -.82).

Factor J: Test-Taking Attitude

Factor J may have to do with a negative test-taking attitude. Resistiveness to the KTSA (B .73) (Kahn, Hill and Latham, 1962) is coupled with avoiding obligations (aut .33) and a lack of desire to do one's best (ach -.32). The placement of hearts in LOVE (.36) in this case might suggest taking the "easy way out", although this is a risky explanation since hearts placed in LOVE has always been interpreted as a healthy response (Kahn, Hill and Latham, 1962).

Any interpretation of the C score (-.29) would be speculative at this point. Coupled with the loading on B (.73), this finding serves to confirm other research (Levine, 1972) showing C scores to be very different from B scores. These two scores are not often contrasted. Kahn, Hill and Latham (1962) contrast them only to the extent that C scores indicate cognition is present (although "severely stimulus-bound" p. 77) while B scores do not.

Factor K

Little is known about having a low number of X scores except that it may mean instability (Kahn, Hill and Latham, 1962). In this factor there is a suggestion that people having few X scores (-.84) may be conforming, dependent or non-rebellious (def .42, aut -.27) depending on how the interactive nature of def and aut is interpreted (see Factor Q below).

Factor L

Perhaps Factor L is a Hysteroid-like factor. D (.86) is found to be the predominate score in the profiles of hysterics as are many letters in the symbol pattern (.22). The denial of anger (agg -.28) goes along with this interpretation, as does the failure to symbolize hearts as "love" (-.20). It should be pointed out that the configuration of C scores (-.51) in relationship to hearts symbolized as "love" (-.20) appears in other factors: D (C .25, hearts as "love" .25), T (C .39, hearts as "love" .36) and V (C .25, hearts as "love" .28). C scores have previously been associated with positive adjustment (Levine, 1972) and may indicate a possible lack of hysteroid-like trends as found in the other variables in this factor.

Factor M

Factor M is almost solely a function of the inclusion of age as a variable (.94).

Factor N

Factor N shows that the tendency to be competive (ach .38) and separate from others (aut .20) is accompanied by a lack of interest in empathizing with or analyzing the behavior of others (int -.83).

Factor O

This factor has to do with emotional involvement in the test taking. A high estimate of one's own performance (First Estimate .89) is linked with an avoidance of reliance on others for decisions (def -.21) and lack of resistance to the test (B -.27) E (.21) can be interpreted as an indicator of emotionality, and the

avoidance of the SMALL and LARGE sort (-.20) might indicate the more emotionally laden categories are more attractive than the neutral ones.

Factor P

Factor P is defined in terms of the Liking-Disliking variable (.93) which appears to have a high degree of specificity of variance.

Factor Q: Non-conformity

This is a non-conformity factor and is named after Hartley's and Allen's (1962) Conformity factor which it closely resembles. This factor includes at one pole the rejection of orderliness (ord -.90), deference (-.42) and pride in endurance (-.33), and at the other pole the acceptance of autonomy (.43) and aggression (.20). There is a suggestion of willingness to criticize others (aut .43, agg .20) while being unwilling to subordinate oneself to others (def -.42).

Some caution in making this interpretation is necessary. Def is usually considered a conformity variable and aut is considered the non-conformity variable (Edwards, 1959), however, Graine's (1957) findings do not support this implication for aut and Bernardin's and Jessor's findings do not support def as a conformity variable as far as behavior is concerned. However, the latter was an Ash type perceptual experiment, where the temptation to "conform" could be especially strong across all groups. Bernardin and Jessor (1957) do confirm their hypothesis that def and aut are bipolar on a dependency-independency dimension. But research is conflicting. Zuckerman (1958) found that rebellious Ss, as chosen by their peers,

are higher on aut and lower on def than non-rebellious Ss. A clear definition of conformity as measured by the EPPS is needed.

Factor R

This factor is similar to Hartley's and Allen's (1962) flightiness factor. It is characterized by the association of the need for attention (exh .88), the need to not give attention to others (nur -.25), little interest in carrying work through (end -.23) and little desire to set high goals (stars in SMALL .27, interpreted from Kahn, Hill and Latham, 1962).

Factor S: Task Orientation

Factor S suggests a task-rather than social-emotional orientation. Doing a job well or accomplishing tasks that require skill (ach .35) and working hard at tasks (end .58) is coupled with a rejection of getting help from others (suc .81) or giving help to others (nur -.25). There is also a lack of desire to criticize others or argue with them (agg -.27).

Factor T

The loadings indicate that Y may have different implications from Z. Achievement requires energy, perserverance and self-control. In the present study the Y score (-.86) is associated with the lack of perserverance (end -.22) and the need to consult others rather than be self reliant (def -.23), while Z (.27) is associated with the need for achievement (.35). This seems to validate the interpretation of a preponderance of Y scores being associated with neurosis (Kahn, Hill and Latham, 1962). Support for this interpretation comes from the loading of .36 contributed by C scores, which have been associated with positive adjustment

(Levine, 1972), and the symbolizing of hearts as "love" (.39) which is associated with healthy emotionality (Kahn, Hill and Latham, 1962).

Factor U

--The positive loadings on this factor indicate that people placing the clear objects together (.84) may be doing so because they are conscious of color (F .22). The negative loadings (hearts in LOVE -.33, hearts symbolized as "love" -.25) are potential indicators of serious emotional problems, perhaps even deprivation of maternal love (Kahn, Hill and Latham, 1962). From a different point of view, F is considered an indicator of emotionality and the placement of clear objects together an indicator of anxiety. Although F is associated with anxiety, an emotion of sorts, it is not associated with the deprivation of maternal love or conflict with love noted from the use of the hearts.

Factor V

Factor V supports the hypothesis that C scores (.28) are signs of health (A -.93, hearts symbolized as "love" .25) or perhaps of conformity. A response may be either bizarre (pathological) or idiosyncratic, thus non-conforming. Symbolizing hearts as "love" can also be either indicators of health or indicators of willingness to accept cultural definitions (conformity) (Kahn, Hill and Latham, 1962).

Clearly the factor analysis demonstrates a lack of communality between EPPS and KTSA variables. Methodological reasons appear implicated in this finding. In discussing the EPPS, Anastasi (1968) writes, "With ipsative scores, the mean intercorrelations of individual scales tends to be negative and the mean

correlation of all the scales with any outside variables will approach zero" (p. 454). The pairing of every variable with every other variable on the EPPS is inherent in the theoretical construction of the test when it was designed to control for social desirability. It should also be kept in mind that the KTSA has ipsative characteristics as well. To interpret single letter scores from the KTSA is risky, since the KTSA profile must be viewed in its entirety before interpretation is possible. Diagnosis, for instance, is made in the context of the location of each letter score and the interrelationship of all scores.

Furthermore, restricted ranges in scores may be expected in a normal population. Such a homogeneous group does not provide the large variance that might be expected from a mixed psychiatric population. Given this state of affairs it may be more fruitful to consider analyses involving extreme scorers and scores.

Study II: Extreme KTSA Scorers

Data from both sexes were combined for the KTSA letter scores and then divided according to sex and sorted into 20 groups according to all the KTSA variables used in the factor analysis. The categories "stars in SMALL" and "hearts in LOVE" will be discussed in Study III. The top 27% of each group was called the high scorers and the bottom 27% was called the low KTSA scorers (Guilford, 1954). Student *t*-tests were run comparing high scorers with low scorers on the EPPS variables. Thus the KTSA was used to define the groups and the *t*-tests were run to determine if differences in mean scores on the EPPS were significant. In Table 6 the ranges of scores for each high and low group on the KTSA are

recorded. Included in Table 6 are the norms relative to the number of letters expected from a typical protocol. It will be noticed that in most cases the present sample division conforms to extreme scores on at least one end of the continuum.

B and C Scores

B scores, which are essentially "I don't know" responses, can be interpreted as evidence of defiance, resistiveness to taking the KTSA, or poor motivation (Kahn, Hill and Latham, 1962). Tables 3, 4 and 5 show that high B scorers (males, females, and both sexes taken together) score higher on aut than low B scorers. Of the scales on the EPPS defiance seems apparent in Edwards' (1959) description of aut. Zuckerman (1958) did find that rebellious Ss, chosen by their peers, score higher on aut than non-rebellious Ss. Edwards' description of aut also includes avoiding responsibilities and obligations, which could be interpreted as avoiding the "obligation" to give responses in a testing situation, or as being resistive to taking the test. The fact that high B scorers (males) score lower on ach than low B scorers, might suggest that they are poorly motivated. This interpretation of low ach scores is purely speculative, since it has not been reported in empirical research. Low ach scores have been associated with the presence of tension and disruptive thought (Stein, 1968) which serves to support Levine's (1972) findings that B scores are associated with "unhealthy" scores on the MMPI. A high number of C scores, which are repetitive responses, are associated with compulsiveness and rigidity (Kahn, Hill and Latham, 1962) best exemplified in the ord variable. High C scorers score higher on ord (females) compared to low C scorers.

Table 3. Extreme KTSA Scorers: Females

KTSA Scoring Category	Ss Scoring in the top 27% of KTSA Scoring Category n = 28		Ss Scoring in the bottom 27% of KTSA Scoring Category n=28				EPPS Scoring Category
	EPPS Scores		EPPS Scores				
	x	SD	x	SD	t	p	
A	15.29	2.29	18.00	4.24	2.98	.01	aff
B	14.71	4.84	11.93	5.11	2.09	.05	aut
C	10.75	3.89	8.14	3.81	2.53	.02	ord
Y	16.68	5.18	13.50	5.15	2.30	.05	aba
NE	8.18	3.24	10.29	4.24	2.09	.05	ord
	12.68	4.98	10.00	4.94	2.02	.05	agg
Number of Letters in Score Pattern	10.93	3.88	13.32	4.87	2.03	.05	agg
First Estimate	8.46	3.78	11.00	5.03	2.13	.05	ord
Positive-Negative Sort	14.18	5.77	11.11	4.86	2.15	.05	suc
	19.18	3.70	16.75	5.23	2.01	.05	nur
Hearts Symbolized as "Love"	9.32	4.91	13.14	4.91	2.91	.01	end
Liking-Disliking	10.18	5.40	13.21	5.58	2.07	.05	end

Table 4. Extreme KTSA Scorers: Males

KTSA Scoring Category	Ss Scoring in the top 27% of KTSA Scoring Category n = 17		Ss Scoring in the bottom 27% of KTSA Scoring Category n=17				EPPS Scoring Category
	EPPS Scores		EPPS Scores				
	x	SD	x	SD	t	p	
A	16.53	4.49	13.65	3.35	2.12	.05	ach
B	13.76	4.44	16.59	3.57	2.04	.05	ach
	17.88	4.28	14.59	4.44	2.20	.05	aut
	6.53	3.06	10.35	5.35	2.56	.02	ord
C	17.12	3.10	14.71	2.76	2.40	.05	aff
D	9.29	2.31	6.53	4.95	2.09	.05	ord
	13.94	3.75	17.00	2.76	2.71	.02	exh
E	12.35	4.20	15.71	4.28	2.31	.05	dom
	20.76	3.67	17.65	4.92	2.09	.05	het
Y	13.18	5.20	16.65	3.41	2.30	.05	int
	9.76	5.30	13.47	5.11	2.08	.05	aba
	16.71	4.98	12.06	5.01	2.71	.02	agg
Z	12.00	4.99	16.41	5.41	2.47	.02	agg
Letters in Score Pattern	13.59	3.59	10.76	3.29	2.39	.05	suc
	13.53	5.58	17.18	4.91	2.02	.05	nur
First Estimate	17.76	3.93	14.35	5.20	2.16	.05	nur
Positive-Negative Sort	16.71	4.04	13.12	4.26	2.52	.02	aff
Hearts Symbolized as "Love"	13.59	3.62	16.24	3.53	2.16	.05	ach
	6.76	3.13	10.12	4.40	2.56	.02	ord
	16.47	3.59	13.35	3.41	2.60	.02	aff
	14.00	2.94	10.94	3.01	3.00	.01	suc
	12.71	5.35	17.24	3.19	3.00	.01	dom
	13.41	4.17	10.18	4.10	2.28	.05	aba
	9.29	3.84	13.94	3.86	3.52	.01	end
BAD and GOOD	16.06	3.99	12.65	4.61	2.31	.05	nur
LIVING and DEAD	11.12	3.57	7.94	3.19	2.74	.01	def
SMALL and LARGE	13.71	3.37	11.35	3.06	2.13	.05	suc

Table 5. Extreme KTSA Scorers: All Subjects

KTSA Scoring Category	Ss Scoring in the top 27% of KTSA Scoring Category n 45		Ss Scoring in the bottom 27% of KTSA Scoring Category n 45				EPPS Scoring Category
	EPPS Scores		EPPS Scores				
	x	SD	x	SD	t	p	
A	13.96	4.59	11.78	4.41	2.29	.05	dom
B	15.24	4.69	12.78	4.67	2.50	.02	aut
C	12.91	4.90	15.11	4.02	2.33	.05	aut
D	16.38	5.24	18.73	5.06	2.17	.05	nur
F	14.93	4.77	12.87	3.70	2.30	.05	ach
X	16.69	4.38	14.96	3.94	1.97	.05	aff
	12.38	5.55	14.71	4.62	2.17	.05	aba
Y	15.38	4.79	17.64	3.80	2.49	.02	int
	14.13	4.72	12.07	4.86	2.05	.05	agg
Z	18.11	5.00	15.42	5.57	2.41	.02	nur

Table 6. Ranges for KTSA Scoring Categories

Scoring Category	KTSA Norms	Females		Males		All Ss	
		Bottom 27%	Top 27%	Bottom 27%	Top 27%	Bottom 27%	Top 27%
A	0	0*	1-7*	0*	0-4	0*	1-7*
B	1-2	0-1	3-12*	0-1*	3-6*	0-1	3-12*
C	3-4	0-3	6-9*	0-3	6-8*	0-2*	6-9*
D	2-3	0*	2-9	0*	2-7	0*	3-9
E	1-2	0-1	3-7*	0-1	3-8*	0-1	3-8*
F	1-2	0*	4-7*	0-1	5-7*	0-1	4-9*
X	4-7	0-1*	4-15	0-1*	4-9	0-1*	4-15
Y	4-7	0-2*	5-12	0-2*	5-16	0-3*	5-16
Z	4-7	0-4	9-17*	0-3*	8-16*	0-3*	9-17*
NE		56-95	123-153	66-90	120-162		
Number of Letters in Score Pattern		4-7	8-9	4-7	8-9		
First Estimate		3-8	15	2-8	15		
Liking-Disliking		13-26	34-47	16-25	33-44		
Clear Objects		0-8	20-40	2-10	22-40		
Positive-Negative Sort		7-18	23-28	14-17	21-26		
BAD and GOOD		0-3	4-8	0-2	4-7		
LIVING and DEAD		0-3	5-8	1-3	6-9		
SMALL and LARGE		0-3	5-9	0-3	5-9		
Hearts Symbolized as "Love"		0-1	3	0	3		

*Ranges which occur outside of the norm

The data from the B and C scores discussed separately seem to support Kahn's, Hill's and Latham's interpretation of these scores. But, of more interest in the present study is the finding that people who give B responses on the KTSA may be very different from people who give C responses. On the one hand high C scorers score higher on ord (females) than low C scorers, while high B scorers score lower on ord (males) than low B scorers. High C scorers score lower on aut (both sexes taken together) and higher on aff (males) than low C scorers, while high B scorers score higher on aut (males, females and both sexes taken together) than high B scorers. The higher aff score for high C scorers is mentioned speculatively in contrast to the higher aut score for the high B scorers. Although Edwards' (1959) descriptions of aut and aff seem to suggest contrasting manifest needs, these two variables seldom appear as contrasting needs in empirical research, with the exception of Hartley's and Allen's (1962) "Dependence vs Independence" factor. In the present study, support was found for contrasting B and C scorers which appears in Factor J. An abnormally high number of C scores is associated with the need for people and orderliness, and an abnormally high number of B scores is associated with the denial of the need for people and the avoidance of order. There is a flavor of defiance and rebelliousness in the high B scorer which is rejected by the high C scorer. The contrast between B and C scorers has not appeared in previous research, with the exception of Levine, 1972, and it is hoped that these findings will stimulate further investigation.

Y Scores, Z Scores

Y is usually interpreted in conjunction with Z scores on individual profiles. However, within normal limits, Y may be said to represent the practical, reality-oriented, approach to life. Too few Y's are associated with being unrealistic. Males scoring low on Y score higher on int and aba and lower on agg than males scoring high on Y. This configuration describes a person who judges the motives of others rather than their acts per se and is able to empathize with them. Kahn, Hill and Latham (1962) have pointed out that high scores on Y do reflect lack of inner freedom, and this statement is, of course, consistent with the high Y scorer's anti-intraceptive cognitive functioning (low int). Int is usually considered a healthy approach to others, yet it occurs with other scores suggesting a lack of self assertion and the need to be subordinate. Aba is a signal of maladjustment on the EPPS. It has been associated with scales on the MMPI which suggest physical complaints, depression, apathy, tension and disruptive thoughts (Stein, 1968). Putting all these considerations together, there is the suggestion of helpless sensitivity, such as might be found in somewhat passive dependent personalities.

Females who score low on Y score lower on aba than females scoring high on Y; this is in direct contrast to the findings for males. There were no other significant differences for female Y scorers. It seems then, that scoring low on Y is very different for females than for males.

The polarity of the Y and Z scores found in factor T is somewhat supported, but not from the same EPPS variables mentioned in the factor analysis. Low Y scorers score lower on agg than high

Y scorers (males, both sexes taken together), while low Z scorers score higher on agg than high Z scorers (males). However, low Z scorers also score lower on nur (both sexes) than high Z scorers, and there is no contrasting higher nur score for the low Y scorers. The low Z scorer seems to need to assert his point of view or to criticize others (agg), while not wishing to help others when they need him (nur), according to the EPPS manual (Edwards', 1959).

In summary, then the following configuration occurs together for low Y scorers who score lower on aba (females) higher on aba (males), higher on int (males and both sexes taken together), and lower on agg (males and both sexes taken together) than high Y scorers. Of course, the converse is true for high Y scorers. Low Z scorers score lower on nur (both sexes taken together) and higher on agg (males) than high Z scorers.

A and F Scores

A scores, which are essentially bizarre responses, are indicators of psychosis; they can also represent idiosyncratic responses (Kahn, Hill and Latham, 1962). There has been some controversy over the rules for scoring A responses. For instance, in the Group KTSA Craddick and Kelly (Kelly, 1969) have changed the rule that responses based on color alone in the symbolization section are A responses.

In this study high A scorers score higher on dom (both sexes) and ach (males) and lower on aff (females) than low A scorers. Dom has been found to be related to competitive behavior (Mogar, 1962); and the higher ach coupled with the lower aff scores are related to overachievement (Gebhart and Hoyt, 1958; Krug, 1959). This does not

seem to fit the "psychosis" model.

Perhaps color responses were the major determinate of the A scores given here. People scoring high on F, which is scored for the mention of color on all measures excluding symbolization, also score higher on ach than those scoring low on F (both sexes). The interpretation of high F scores is that they suggest hysteria, impulsiveness, and hypomanic/manic behavior. Only the last interpretation is somewhat supported here, since ach may signify overachievement (Gebhart and Hoyt, 1958; Krug, 1959) which might loosely be interpreted to include manic behavior. Actually, color responses are not yet clearly understood.

X Scores

Low X scores indicate instability and stimulus avoiding behavior (Kahn, Hill and Latham, 1962). Instability is supported by the higher score on aba (both sexes). The latter interpretation is supported by the lower score on aff (both sexes) with perhaps people-as-stimuli being avoided.

A preponderance of X scores is associated with character and behavior disorder diagnoses (Kahn, Hill and Latham, 1962) as is a lowered aff score (Watson, Pasewark and Fitzgerald, 1970; Norwicki, 1967). The trend is for high X scorers to score higher on aff than low X scorers. However, Kriegman and Kriegman (1970) hypothesize that X scores are associated with the need for social approval.

E and D Scores

The results of t-tests for E and D Scores are uninterpretable according to current interpretations of these scores. Low D scorers score higher on nur (both sexes taken together), lower on ord (males),

and higher on exh (males) than high D scorers, while high E scorers score lower on dom and higher on het than low E scorers. Not much is known about low D scores, and the high E scores do not seem to fit any current interpretations.

Hearts Symbolized as "Love"

To fail to symbolize hearts as "love" is "the most potent indicator of emotional disturbance" on the KTSA (Kahn, Hill and Latham, 1962, p. 75). It suggests rigid repression in interpersonal relationships and possibly maternal rejection. When compared to males who symbolize all three hearts as "love" the males who had no hearts symbolized as "love" scored significantly higher on ach, ord and end. The needs associated with these three scales are the only EPPS variables which contain almost no mention of needs that are satisfied through interpersonal interaction; rather they apply to tasks, with a flavor of the rigidity that is associated with obcessive-compulsive behavior.

These males also scored lower on aff and suc, suggesting they also deny needing others and deny that others can help them. Perhaps these needs are repressed.

The higher scores on dom suggest that when these Ss do interact with others, they need to interact from afar, as in directing the actions of others or telling them how to do their jobs. The lower aba score may indicate a fear of being dominated. The latter interpretations are risky because aba is an "unhealthy" scale while dom is not (Stein, 1968). Considering this, then, the "repression in interpersonal relationships" interpretation is better supported than the "severe emotional problems" interpretation.

Females scored in the same direction as males on end, but no other differences were significant. Silvers and Wirls (1970) report that the blue heart may not have the same meaning for females as it does for males. Females do not regard the blue heart positively, and do not symbolize it as "love". Despite the fact that the lower range for females in this study includes some Ss symbolizing one heart as "love", it does appear that the meaning of the heart symbol for females should be further investigated.

Sort

Emphasis on the negative Sort occurs when S places more objects in HATE, BAD and DEAD than he places in LOVE, GOOD and LIVING. Emphasizing the negative sort over the positive sort suggests trauma involving positive emotions (Kahn, Hill and Latham, 1962). Females who emphasize the negative sort score lower on suc and nur, and males score lower on aff than those emphasizing the positive sort. The ability to function well in positive emotional relationships, in the form of caring for others and being cared for, seems impaired.

Emphasizing the negative sort also signifies hostility or aggression (Kahn, Hill and Latham, 1962). Since differences between scores on agg and aut were not significant, this interpretation is not supported. Other research supports this conclusion (Mann, 1969b; Craddick, 1968).

The data from the combined sorting categories are uninterpretable. Since each sort will be analysed separately in the last section the combined categories will not be discussed.

The Score Pattern: NE and Number of Letters in the Score Pattern

Ss having scores below 90 are considered abnormal (Kahn, Hill

and Latham, 1962). The lower range for females in this study includes the diagnostic categories of character disorder and neurosis (Kahn, Hill and Latham, 1962, p. 104). Females having this range score higher on ord and lower on agg than those having a high NE. High ord scores occur within the profiles of prison inmates (Bernberg, 1960) and with Ss given psychiatric diagnoses (Pasewark, Davis and Fitzgerald, 1968; Newman and Wischner, 1960), but the literature on agg is conflicting. Agg correlates positively with indicators of suspicion and mistrust on the MMPI (Stein, 1968), but Norwicki (1967) found that people with the diagnoses of personality disorder, neurosis and psychosis all scored lower on agg than normals. On the whole, the assignment of 90 as the cutoff point is supported.

Five or fewer letters in the score pattern suggests a diagnosis of aggressive and assaultive personality. Kahn, Hill and Latham (1962) state clearly that this interpretation has not been fully validated by research. In this study the ranges for the lower groups go beyond five, so the findings are to be taken as trends. Compared to the group having 8-9 letters in the score pattern, females having 4-7 letters in the score pattern score higher on agg, which supports the interpretation.

It is more appropriate to interpret the data from high scorers, where the range is 8-9. A score of 9 means both D and A scores are present, and a score of 8 means that one or the other is present. Both signify pathology (Kahn, Hill and Latham, 1962). The low agg score for females in this category may stem from hysterical trends diagnosed by the presence of D scores and 7-9 letters in the score pattern. Perhaps the low agg score may be interpreted as inhibition

(D scores, in general) and an inability to express anger (hysteria).

Males having 8–9 letters score higher on suc and lower on nur than those having 4–7 letters in the score pattern. Caretaking is needed from others without the giving of caretaking in return. The presence of A and D responses may account for this, since D is associated with emotional immaturity and A is associated with psychosis (Kahn, Hill and Latham, 1962).

Liking - Disliking, First Estimate

A high score on the Liking-Disliking variable implies that hostility may be repressed. No ready interpretation of the results is available. If end were a measure of energy level, it could be hypothesized that repression were causing a drain on energy, but it has been found that participants in high school athletics score lower on end than do non-participants (Fletcher, 1971).

Results from the "first estimate" variable are difficult to interpret, especially for females. Compared to high estimators it would seem reasonable that Ss thinking they could place fewer objects back on the strip exactly as they had them before would have a low need to be organized (ord). Instead, the converse is true.

It should be kept in mind that the significant t-tests reported represent but a fraction of the total number of t-tests actually run, since t-tests which were not significant were not recorded. Conspicuous therefore is the need for cross-validation, and the results presented here are offered within the context of suggestions for potentially viable additional research.

Study III: KTSA Sort

Ss were divided according to sex. Groups were determined by

the norms established for the KTSA, with Ss divided into low, normal and high scorers for each sorting category. Not only were low and high scorers compared to normal scorers, but also high and low KTSA scorers were compared to each other as to how they score on the EPPS. The KTSA was once again used to define the groups while t-tests were run to determine differences between the means of scores on the EPPS for each group. On the categorys "stars in SMALL" and "hearts in LOVE" groups were determined as to whether Ss had placed 0 or 3 of the objects in the category. Unlike the previous study, the n for each group being compared was unequal. In some of the comparisons there is a wide decrepancy in the ns. These findings should be viewed as trends. All hypotheses and results are discussed in the light of Kahn's, Hill's and Latham's (1962) description of how the placement of objects in the Sorting categories are to be interpreted (pp. 86-87). In Tables 7 and 8 only significant differences are recorded.

Love

Ss putting more than 3 objects in LOVE are supposedly dependent, hence the hypotheses that those Ss will score higher on suc and def than Ss having 3 objects in LOVE.

Since Bernardin and Jessor (1957) found def and aut to be bipolar on a dependency-independency level, it seems contradictory that males placing fewer than 3 objects in LOVE score lower on def than those placing 4-7 objects in LOVE. An overabundance of objects in LOVE is also considered an indication of reaction formation to hostility, but the prediction of low aut and agg scores for this group was not supported. The hypothesis that Ss having fewer than 3 objects in LOVE will score lower on nur stems from Kahn's, Hill's

Table 7. KTSA Sort: Females

KTSA Sort	Ss placing a low number of objects in Sort				Ss placing the normal number of objects in Sort				Ss placing a high number of objects in Sort				t	p	EPPS Scoring Category
	KTSA Range	n	EPPS Scores x	SD	KTSA Range	n	EPPS Scores x	SD	KTSA Range	n	EPPS Scores x	SD			
Hearts in LOVE	0	9	18.11	2.98							12.97	5.50	2.69	.01	aut
			14.89	5.95					3	35	18.63	4.29	2.15	.05	nur
			7.78	4.63							12.69	5.49	2.46	.01	end
HATE	0-1	88	10.76	3.78					2-3	16	8.25	3.91	2.43	.02	def
GOOD							9.60	4.02			11.71	3.90	2.18	.05	def
			11.68	3.48			8.79	4.21					2.86	.01	ord
	0-1	22	13.86	4.72	2-3	58	10.84	5.13	4-9	24			2.40	.02	end
LIVING			10.48	4.43			7.70	3.91					3.10	.01	ord
							7.70	3.91			11.00	3.87	2.46	.02	ord
	0-2	56	13.88	3.35	3-4	37			5-6	11	11.64	2.77	2.08	.05	exh
							14.27	4.07			11.64	2.77	2.00	.06	exh
			14.07	4.58							9.64	4.95	2.90	.01	aut
							14.05	5.01			9.64	4.95	2.57	.02	aut
							9.84	3.34			12.82	4.33	2.43	.02	def
SMALL			14.48	3.74			10.73	3.79					4.16	.001	ach
	0-1	33			2	37			3-5	34					
							10.73	3.79			14.06	4.46	3.40	.001	ach
			11.52	3.95			9.11	3.19					2.82	.01	def
							16.86	5.44			13.50	5.68	2.55	.02	het
LARGE	0-1	46	16.93	5.76	2	33	19.85	4.36					2.45	.02	chg

Table 8. KTSA Sort: Males

KTSA Sort	Ss placing a low number of objects in Sort				Ss placing the normal number of objects in Sort				Ss placing a high number of objects in Sort				t	p	EPPS Scoring Category
	KTSA Range	n	EPPS Scores x	SD	KTSA Range	n	EPPS Scores x	SD	KTSA Range	n	EPPS Scores x	SD			
LOVE	0-2	27	11.07	2.92					4-7	7	7.71	2.06	2.85	.01	def
Hearts in LOVE	0	6	18.67 12.17	4.32 3.66					3	26	13.65 16.38	3.39 4.56	3.10 2.11	.01 .05	ach nur
HATE	0-1	54	15.04	3.97					2-4	11	12.09	5.59	2.09	.05	int
GOOD	0-1	19	13.84 11.11 12.47 12.47	3.48 3.23 5.39 5.39	2-3	38	13.11 15.71	3.26 4.35	4-5	8	17.00 17.38	3.30 4.60	2.18 2.19 2.25 2.44	.05 .05 .05 .02	aff suc nur nur
LIVING	0-2	32	16.56 17.03	4.59 4.97	3-4	25	13.44 17.60	4.98 3.85	5-7	8	11.13 11.13	4.64 4.64	2.46 3.94 3.04	.02 .001 .01	nur chg chg
DEAD	0-1	35	9.26 15.91 13.29 15.74 10.66 15.11	3.70 3.65 3.24 4.79 4.40 4.84					2-5	30	11.20 13.80 11.43 13.27 13.23 18.17	3.18 4.06 3.62 4.83 4.58 4.53	2.25 2.21 2.18 2.07 2.31 2.61	.05 .05 .05 .05 .05 .02	def aff suc dom aba chg
SMALL	0-1	18	16.06	3.62	2	25	13.44	4.26	3-4	22			2.11	.05	aff
Stars in SMALL	0	31	11.16 14.00 16.10	3.65 4.64 3.25					1-3	34	9.24 16.24 13.88	3.29 4.23 4.29	2.24 2.03 2.33	.05 .05 .05	def aut aff

and Latham's description for this group as having "poor social service motivation" (p. 86). The hypothesis that they would score lower on het and aff was generated to encompass the interpretation that these Ss "lack the capacity to relate to members of the opposite sex or to people in general" (p. 86). However, none of these hypotheses were supported.

Two hypotheses for "hearts in LOVE" were supported: both males and females putting no hearts in LOVE score lower on nur; and males score higher on aut than those putting no hearts in love. The low score on nur suggests a lack of affection and support for others, or trouble with positive emotional relationships. The higher aut score for females is an interesting finding in that it was hypothesized as a non-conformity factor, despite research to the contrary (Bernardin and Jessor, 1957; Graine, 1957). To sort no hearts in LOVE is an indicator of the rejection of culturally accepted channels in expressing emotions, thus may signify non-conformity. The hypothesis which was not supported was generated to include the interpretation that placing no hearts in love suggests repression in interpersonal relationships (low aff) (Kahn, Hill and Latham, 1962, p. 74).

The higher score on end for females placing 3 hearts in LOVE is uninterpretable but the score on ach fits other data on the EPPS. Males placing 3 hearts in LOVE score lower on ach and higher on nur than those having no hearts in LOVE. Low ach scores and high nur scores imply a social rather than competive orientation (Krug, 1959; Gebhart and Hoyt, 1958).

The aut and agg hypotheses, namely that Ss placing more than

1 object in HATE will score higher on agg and aut than Ss placing 1 or no objects in HATE, were based on the assumption that more than one object in HATE signifies open expression of hostility. These hypotheses were not supported, but it is interesting that males having more than 1 object in HATE score lower on int than those having less than 1 object in HATE. A higher int score suggests the need to analyse motives instead of judging people by their acts, and perhaps the need to intellectualize. This may imply a thinking rather than acting orientation. Thus the acting-out quality of the hostility described for this group on HATE may be somewhat supported.

A high number of objects in HATE also signifies paranoia. Stein (1968) found that low def scores and high agg scores correlate with suspicion and mistrust. Females in this group do have lower def scores, although the agg component is absent, thus partially supporting the interpretation.

BAD

The hypotheses that Ss having more than 1 object in BAD will score higher on agg and aba than Ss having 1 or no objects in BAD, were made to encompass the interpretations that this group may be aggressive and prone to guilt feelings respectively. Neither hypothesis was supported, and there were no other significant differences between these groups on the EPPS.

GOOD

The placement of more than 3 objects in GOOD is associated with dependency, rigidity and an idealistic approach to life. The def hypothesis was generated to encompass dependency, which was supported here. Males placing more than 3 objects in GOOD do score

higher on def than those placing 2-3 objects in GOOD. This finding may also suggest a too trusting, idealistic approach to others, if we accept Stein's (1968) interpretation that low def scores suggest suspicion. The hypotheses that Ss having more than 3 objects in GOOD will score higher on ord and end were generated to include rigidity. However the data for females show that Ss placing fewer than 2 objects in GOOD are more rigid (score higher on ord and end) than the normative group. Rigidity should apply to the higher scoring group rather than the low scorers.

. . . Lack of trust, the lack of capacity for rapport, and criticality are suggested when Ss place fewer than 2 objects in GOOD, therefore this group should score lower on EPPS scales implying good rapport with others (aff, suc and nur) and higher on those scales seemingly tapping mistrust (agg, Stein 1968) and criticality (aut). The latter two hypotheses were not supported, however the "rapport" hypotheses were. Males having few objects in GOOD do score lower on aff and suc than those having a high or normal number of objects in GOOD respectively. Differences were not significant, however, when Ss placing 0-1 objects in GOOD were compared to those placing 2-3 objects in GOOD for aff. Only the two extreme groups proved significantly different. However, the hypothesis for the low scoring group concerning nur was supported for not only the normal but also the high scoring groups. Ss placing 0-1 objects in GOOD score significantly lower on nur than either those placing 2-3 or 4-5 objects in GOOD. The lack of rapport with others, seems to be most prominately in the direction of refusing to take care of others, with supporting evidence that affiliation with, and help

from others is avoided.

LIVING

The hypotheses about Ss having fewer than 3 objects in LIVING were generated to encompass withdrawal (low aff) and the inability to work out problems effectively (high aba). These hypotheses were not supported, however an unexpected result occurred for females.

Ss placing the normal number of objects in LIVING score lower on ord than either Ss placing more than or less than the normal number of objects in LIVING. No interpretation is offered, however.

Female Ss placing 5-6 objects in LIVING score lower on exh than either Ss placing 0-2 ($p<.05$) or 3-4 ($p<.06$) objects in LIVING. If exh represents attention getting then this finding seems to refute the "inactive, withdrawn" description of Ss placing few objects in LIVING.

Finally, females placing more than 4 objects in LIVING score significantly lower on aut than either those putting the normal or below normal number of objects in LIVING. A high number of objects in LIVING is interpreted as suggesting problems in survival. The lower aut score could be construed to mean these Ss feel they cannot take care of themselves. The higher def score for this group compared to the normal group suggests that others are looked to for leadership and decision-making. Thus for females, placing objects in LIVING taps characteristics from three EPPS variables that hold across the three KTSA groups, ord, exh and aut. Females placing 5-6 objects in LIVING score lower on aut and exh than either those placing 3-4 or 0-2 objects in LIVING, while those placing the normal number of objects in LIVING (3-4) score lower on ord than either of

the other two groups.

Males having more than 4 objects in LIVING score lower on chg than either the normal group or the below normal group. Fear of change may be related to "survival problems", but this is only a speculation. Males placing 0-2 objects in LIVING score higher on nur than those placing 3-4 objects in LIVING, but there is no difference between the low and high scorers on nur.

Speculation on the meaning of these findings for both males and females is risky, however, since there was a high degree of discrepancy between the ns for each KTSA group.

DEAD

More than 1 object in DEAD suggests depression, hypochondriasis, guilt and possibly suicidal ideation. Edwards' description of aba is linked to bodily complaints by Stein (1968). The hypothesis that Ss having more than 1 object in DEAD will score higher on aba is confirmed for males. The placement of more than one object in DEAD signifies more bizarre pathology than any other Sorting category. The pathology of this group is obvious in the combination of EPPS scores. Low dom scores may be related to social introversion (Stein, 1968); the low scores on aff and suc suggest that this group withdraws from people and does not see them as a means for support. The lack of high scores on aut suggest that self-supportiveness or even rebellion is not a recourse for this group. The high score on def suggests either a sort of sheep-like following of others, or a fear of other's power. Combined with this profile, the high score on chg might be interpreted as flightiness or a desire to escape the situation. (Hartley and Allen, 1962). In summary, the sorting of

more than one object in DEAD taps a larger variety of EPPS variables than any other atypical Sorting category. To place more than one object in DEAD signifies a greater degree of pathology than any other atypical sorting on the KTSA. Evident in this group are EPPS scores which seem to imply bodily complaints, depression and guilt (lower aba scores), social introversion (lower dom scores), withdrawal from others (lower aff scores), the rejection of help from others (lower suc scores), deference to authority, and flightiness (higher scores on chg).

There were no significant differences for females. Due to the large number of EPPS scales this variable taps for males, this seems unusual. Perhaps emphasis on the DEAD sort has a different meaning for females.

SMALL

More than 2 objects in SMALL is interpreted to mean inferiority, failure and passivity, (hence the hypothesis that this group will score higher on aba than in SMALL), compensated by a show of aggressiveness (encompassed by the hypothesis that this group will score higher on agg than those placing less than 2 objects in SMALL). Difficulty in admitting weakness or problems is suggested when fewer than 2 objects are placed in SMALL. The hypothesis that these Ss will score higher on ach and aut than Ss placing more than 2 objects in SMALL was made to include this interpretation. With the exception of the hypothesis concerning ach, none of these hypotheses were supported.

The strongest data in the Sort Section occurred with relation to SMALL for females. The three groups for each category

were evenly matched as to n, the significance levels were high, and the EPPS variable appears to be valid. Females placing either fewer than 2 or more than 2 objects in SMALL score higher on ach than those placing 2 objects in SMALL ($p<.001$ and $p<.01$ respectively). The ach scale on the EPPS has been validated for overachievers by Gebhart and Hoyt (1958) and Krug (1959), and for behavioral instances of achievement by Worell (1960) and Mogar (1962) (for females only). Perhaps for the group having more than 2 objects in SMALL ach represents an overcompensation for feelings of failure, but passivity is difficult to explain in this context. In the group having fewer than 2 objects in SMALL the hypothesis that these Ss may have difficulties in admitting weaknesses is supported. In this context ach must be thought of as overachievement to fit the KTSA interpretation. However this interpretation of ach may be risky, since it seems healthier to have high ach rather than low ach scores. (Stein, 1968).

Females placing 0-1 objects in SMALL score higher on def than those placing 2 objects in SMALL. Craddick (1967) interprets the SMALL-LARGE sorts on an expansiveness-constriction dimension. The Deferring to others might be interpreted as constriction in one's self concept, but this interpretation is only speculative in nature.

An emphasis on the SMALL-LARGE categories may mean an avoidance of more emotionally tinged areas (Kahn, Hill and Latham, 1962, p. 85). Females emphasizing the SMALL sort are apparently not as interested in relationships with the opposite sex, which may be construed to require emotional involvement, than those placing the normal number of objects in SMALL. Males placing an abnormally

low number of objects in SMALL score higher on aff than those placing a normal number of objects in SMALL. This fits the explanation that those not emphasizing the SMALL category may be more interested in Sort areas that are emotionally tinged; e.g. they appear to need affiliation with others which might require emotional involvement. This interpretation is risky, however, since the inference that use of the more emotionally tinged areas of the Sort coincides with willingness to be emotionally involved with others is purely speculative.

The placement of stars in SMALL indicates little hope for future achievement, hence the hypothesis that Ss having 1-3 stars in SMALL will score lower on ach than Ss having no stars in SMALL, which was not supported. The lower scores on def and aff and higher scores on aut for this group suggest the need to avoid others and to avoid subordination to others. Stars in SMALL as a category is factor analytically complex, and interpretations of this variable may depend on the symbolic meaning of the star objects given by individual Ss.

LARGE

The hypotheses for the high scoring group on LARGE were made to encompass the description "status seeking" (high ach) and grandiose (high exh); and the hypotheses on the lower scoring group were made to encompass "lacking in acknowledgement to authority (high aut and low def) and hostility against society (high agg). None were supported and the finding that males placing fewer than 2 objects in LARGE score lower on chg than those placing 2 objects in LARGE is unexplainable.

SUMMARY

The preceding study was undertaken in an attempt to relate the KTSA with the EPPS and in so doing, attempt to validate a variety of hypotheses given in the KTSA manual. 104 females ranging from 17 to 43 years and 65 males ranging from 16 to 28 years from elementary psychology classes at Georgia State University served as subjects. The mean age for both sexes was 20.1 years. The EPPS was given in groups and the KTSA was given individually. The results were analyzed along three dimensions: factor analytically, KTSA extreme scorers across the EPPS variables, and a determination of the psychological meaning in terms of need structure of the KTSA sorting task. The results obtained are multi-dimentional and complex.

Among the strongest findings to emerge were that people who give B responses on the KTSA may be very different from people who give C responses. An abnormally high number of C scores is associated with lower aut scores ($p < .05$), the need for people (higher aff scores, $p < .05$) and the need for orderliness (higher ord scores, $p < .02$) when compared to the group having a low number of C scores.

An abnormally high number of B scores is associated with the denial of the need for people (lower aut scores $p < .05$, and $p < .02$) and the avoidance of order (lower ord scores, $p < .02$) when compared to Ss having low numbers of B scores. There is a flavor of defiance and rebelliousness in the high B scorer which is rejected by the high C scorer.

The KTSA Sort, the placement of more than one object in DEAD signifies more bizarre pathology than any other atypical sorting, and the group that sorted more than one object in DEAD scored

significantly different than the group placing one or no objects in DEAD on a wider range of EPPS variables than any other comparison on the Sort. In comparison to the group having one or no objects in DEAD the pathology of this group was evident in the combination of EPPS scores which included scales which supposedly tap social introversion (lower dom scores, $p<.05$) withdrawal from people in general (lower aff scores, $p<.05$), the denial of need for support from others (lower suc scores, $p<.05$), deference (higher def scores, $p<.05$) possibly depression and bodily complaints (higher aba scores, $p<.05$), and flightiness (higher chg scores, $p<.02$) These findings were significant for males only and there were no significant differences for females. Perhaps emphasis on the DEAD Sort has a different meaning for females.

Females placing either fewer than 2 or more than 2 objects in SMALL ach represents an overcompensation for feelings of failure, and in the group having fewer than 2 objects in SMALL ach represents having difficulty in admitting weakenesses. In this context, the ach variable was taken to suggest overachievement, as has been suggested by other research.

Taken together these findings represent an exploratory validation study of the KTSA and it is hoped that future studies can be built upon the present foundation.

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